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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,766	07/19/2003	Wallace T. Y. Tang	535302-459005	2971

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APPLIED MATERIALS, INC.
2881 SCOTT BLVD. MS 2061
SANTA CLARA, CA 95050

EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

6

DATE MAILED: 02/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909.766

Examiner

Sylvia R MacArthur

Applicant(s)

TANG, WALLACE T. Y.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 14-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 33-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 19 July 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13 and 33-36, drawn to a CMP apparatus, classified in class 156, subclass 345.13.
 - II. Claims 14-32, drawn to a method of CMP detection, classified in class 250, subclass 227.14.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by another materially different apparatus, i.e. by human eye.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a personal interview with David Goren and Raymond Kwong on a provisional election was made without traverse to prosecute the invention of group I, claims 1-13 and 33-36. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-32 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Double Patenting

5. Claims 1-13 and 33-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-50 of U.S. Patent No. 5,949,927. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims a CMP device wherein the measured light signal has at least one wavelength between about 200 nanometers and about 11,000 nanometers. The patented apparatus also comprises a fiber optic cable, a light source, the light signal is analyzed to determine thickness change. The patented apparatus further comprises a rotating platen, chuck, and an endpoint detector with a laser interferometer and a hole formed through the platen and polishing pad.

Likewise the present invention claims a platen, chuck, motor, and an endpoint detector with a laser and hole filled with a fiber optic cable. The light source (laser) is at a wavelength between 200 and 11,000 nm.

6. Claims 1-13 and 33-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of copending Application No. 09/134,147. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application .

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The co-pending application claims a CMP apparatus comprising a light source, a photodetector connected to an interferometer, and a window embedded with the polishing table.

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Likewise the present invention claims a platen, chuck, motor, and an endpoint detector with a laser and hole filled with a fiber optic cable.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1, 3-7, 10, 12, 13, 33, 34, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogawa (JP 57-138575).

Ogawa teaches a motor 5 and a lapping machine (platen) 9 is rotated to grind the lower face of a work 16 (wafer) that is set in the piercing hole 15 of a workholder 14 (chuck). The workholder 14 has a lapping agent supplied to a polishing cloth 10 (polishing surface). During the grinding laser light from a laser stimulating device (laser interferometer) 27 is directed to the grinding gas of the work 16 through an objective lens (focusing lens) of a weight 17 that is provided on the piercing hole 15. The output signal from the photosensor 28 (detector) is input to a control device 29 (analyzer). If the output signal coincides with the reference value, the motor 5 is stopped, and the rotation of the lapping machine is stopped. This reads on the endpoint detection limitation. Note the combination of photosensor and control device inherently form an interferometer. Note that the laser light inherently produces a light of wavelengths between 200-11,000 nm.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-13 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokai (3-234467).

Kokai teaches a polishing platen 6 that is rotatably positioned on a polishing unit. A driver 9 (electric motor) is provided on the polishing unit to rotate the platen. A polishing holder 7(chuck) rotates relative to the polishing platen 6. A polishing cloth 5 (polishing surface) is provided on the polishing platen 6. A window glass 4 is inserted into an attachment hole 6b which is formed at an appropriate portion of the polishing platen 6.

A sensor 3a of an optical displacement measuring device (interferometer) 3 is inserted into the attachment hole 6b below the window glass 4. The sensor 3a is connected to a calculation element 3b in the optical displacement measurement device 3. Note the optical displacement measurement device notes the change in reflected light using interferometry. Measurement light 3d passes through the window glass 4 and irradiated the surface 2a to be measured. A control unit 8 (analyzer) is used to set a polishing dimension (the thickness of the film, see page 5 of the English translation) and stops polishing when the measured value reaches the polishing dimension. (This reads on endpoint detection.)

Sensor 3a is connected to computing element 3b of optical displacement gauge 3 through cord (3c, optical fiber).

Kokai fails to teach that the light source is a laser.

Laser light is a well known light source to one of ordinary skill in the design of interferometric apparatus.

The motivation to utilize laser light is that it allows for in-situ measurements in a controllable, speedy manner.

Regarding claims 12 and 34, likewise, the apparatus of Kokai fails to specifically teach that the wavelength of light is between 200 and 11,000 nm.

The motivation to utilize light within this range is that the broad range encompasses that of visible, IR, and UV light which all provide known forms of light sources in interferometry.

Thus, it would have been obvious for one of ordinary skill in the art to utilize a laser as a light source in the apparatus of Kokai.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 703-306-5690. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the

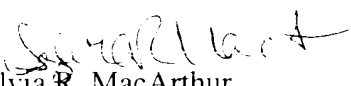
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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Sylvia R. MacArthur
February 13, 2003


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER FOR